

What is claimed is:

1. A brushless motor, comprising:

a stator with a plurality of sets of excitation coils therearound;

5 a rotor;

a sensor magnet having n poles ($n \geq 2$) rotated integrally with said rotor; and

a first magnetic sensor, a second magnetic sensor, and a third magnetic sensor, each for detecting a magnetic field of
10 said sensor magnet, wherein

an angular distance between the first and second magnetic sensors, and an angular distance between the second and third magnetic sensors are set to be a smallest possible one of angles less than 180° that are obtained by

15 $(3m + 1) \cdot \theta_a$ and $(3m + 2) \cdot \theta_a$, where m is an integer and equal to or larger than zero, and θ_a is a basic minimum mechanical angle obtained by $360^\circ / (n \cdot 3)$.

2. The brushless motor according to claim 1, further
20 comprising:

phase adjusting means for generating position signals having a mutual phase difference of electrical angle of 120° by adjusting phases of output signals from said first, second, and third magnetic sensors.

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3. The brushless motor according to claim 2, wherein,

when said angular distance of mechanical angle is one of the angles less than 180° that are obtained by $(6m + 3 \pm 2) \cdot \theta_a$, said phase adjusting means inverts phases of output signals of said first and third magnetic sensors to produce position signals while using an output signal of said second magnetic sensor as a position signal without inverting its phase.

4. The brushless motor according to claim 2, wherein when said angular distance of mechanical angle is one of the angles less than 180° that are obtained by $(6m + 3 \pm 2) \cdot \theta_a$, said phase adjusting means inverts the phase of an output signal of said second magnetic sensor to produce a position signal while using output signals of said first and third magnetic sensors as position signals without inverting their phases.

5. The brushless motor according to claim 3, wherein said first, second, and third magnetic sensors are hole elements, and said phase adjusting means performs phase inversion by reversely connecting signal output terminals of said hole elements.

6. The brushless motor according to claim 1, wherein said magnetic sensors and power supply terminals for said excitation coils are disposed upon a substrate, said substrate being assembled such that said magnetic sensors are positioned in close proximity to said sensor magnet.

7. The brushless motor according to claim 6, wherein
said substrate includes a power supply control circuit mounted
thereon for controlling power supplied to said excitation coils
5 based on output signals from said magnetic sensors.

8. The brushless motor according to claim 1, wherein the
brushless motor is used as a blower motor of a vehicle air-
conditioning system.